Koch, Kristine

From: Shephard, Burt
Sent: Thursday, October 23, 2014 4:56 PM
To: David DeForest
Cc: John Toll; Koch, Kristine
Subject: RE: Manganese follow-up on brown trout and brook trout

Hi David,

Your reading of the Kimball (1978) dissertation appears correct, I obtained the same acute LC50 and chronic MATC values of 33,603 and 1770 µg/L, respectively, with an ACR of 18.98. The 1770 µg/L value is a MATC, so no need to swap out an EC20 for a MATC. I don't think this appreciably changes anything, but Table 6 of Kimball 1978 can be used to derive a chronic MATC of 1775 µg/L, giving a marginally smaller ACR of 18.93. I also learned from Kimball that carbon tetrachloride is a metal, wonder why he tested it.

Regarding brown trout, now that I know to look in Stubblefield et al. 1997 instead of the numbers given in Stubblefield and Hockett 2000, I see where your acute and chronic values came from, and was able to replicate your brown trout ACR as per your discussion below.

Your understanding of my evaluation of the brook trout LC50, MATC and ACR from our earlier phone conversation is correct to the number of significant digits I did my calculation.

I can confirm all of the calculations you describe in your attached email. Go ahead and complete these changes, as well as any others needed to complete the recalculation of your proposed chronic Mn equation and criteria concentrations at various water hardness levels. Assuming all these changes are made, I should be able to run a revised Mn memo and chronic values from you past Kristine Koch with my recommendation to approve it for use at Portland Harbor. As we've previously discussed, I've already been able to replicate your acute equation and values, while the calculation methodology itself is fine.

I apologize for having to bail on your call this morning, I was literally reaching for my phone to dial into a call on another site when you called.

Best regards,

Burt Shephard
Risk Evaluation Unit
Office of Environmental Assessment (OEA-095)
U.S. Environmental Protection Agency, Region 10
1200 6th Avenue
Seattle, WA 98101

Telephone: (206) 553-6359
Fax: (206) 553-0119

e-mail: Shephard.Burt@epa.gov

"Facts are stubborn things"
- John Adams

From: David DeForest [mailto:DavidD@windwardenv.com]
Sent: Thursday, October 23, 2014 2:55 PM
To: Shephard, Burt
Subject: RE: Manganese follow-up on brown trout and brook trout

Hi Burt-

(b) (6))...just wanted to see if you've by chance had a chance to look at brown trout yet.

We need to submit a revised version of our Mn tech memo to our client tomorrow, but would like to get your confirmation if possible.

Thanks!
David

From: David DeForest
Sent: Wednesday, October 22, 2014 1:41 PM
To: 'Shephard, Burt'
Cc: John Toll; Brian Church
Subject: Manganese follow-up on brown trout and brook trout

Hi Burt-

In addition to confirming the Kimball (1978) values, I wanted to follow up on brown trout and brook trout, per your comments on our call Monday.

- Brown trout: The chronic value of 4670 µg/L in Table 3 is actually an IC25 taken directly from Stubblefield et al. (1997). We had Stubblefield and Hockett (2000) as the citation, which was correct for the acute data, but we should have also included Stubblefield et al. (1997) for the chronic data. Regardless, per your comments, we will update the ACR to be based on the MATC (defined as the geomean of the NOEC and LOEC). The NOEC and LOEC for brown trout, as reported in Table 2 of Stubblefield et al. (1997), are 3940 and 7380 µg/L, respectively. This results in an MATC of 5390 µg/L. With the corresponding acute LC50 of 15,973 µg/L, the resulting brown trout ACR would be 2.96.

- Brook trout: We had chronic values of 2104 and 3695 µg/L based on EC20s, as reported in Stubblefield and Hockett (2000). You had suggested that we calculate the chronic values as the geomean of the NOEC and EC20, which resulted in chronic values of 1076 and 3612 µg/L for soft and hard water, respectively, which result in ACRs of 4.76 and 7.61 (for a species mean ACR of 6.02). Just want to confirm that I followed you correctly. We will make that change, if so.

Thanks!
David